



THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

CPWR Resources for Construction Contractors & Trainers

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Austin, TX

About CPWR

CPWR is dedicated to reducing occupational injuries, illnesses & fatalities in the construction industry through:



A recognized world leader in construction safety and health research

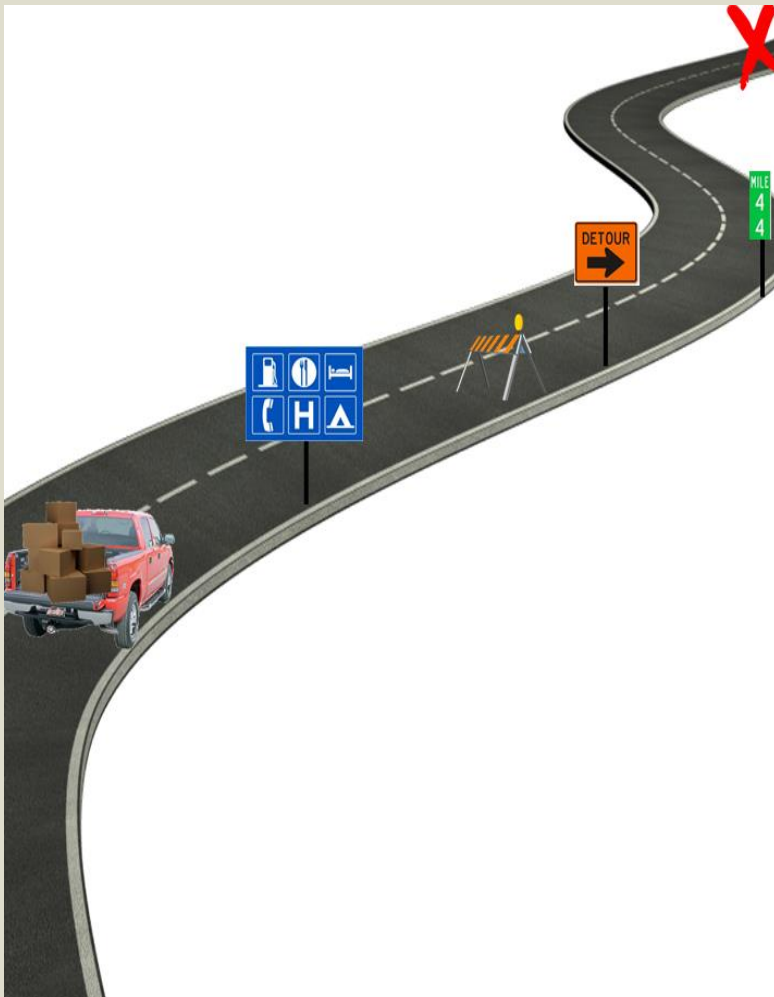


The training offered by CPWR builds on the existing infrastructure of the Building Trades Unions and the 2,000 joint apprenticeship and training programs in all 50 U.S. states and in Canada.



In order to prevent deaths, injuries and illnesses in construction, interventions must be evaluated in the workplace and communicated to employers and workers.

Research to Practice (r2p)



2008 National Academies Finding:
Significant research on effective interventions *but* slow adoption

Questions to Address:

- How can the program get vital information to the worker?
- How does the program persuade contractors and workers to effectively use the interventions developed through the research?

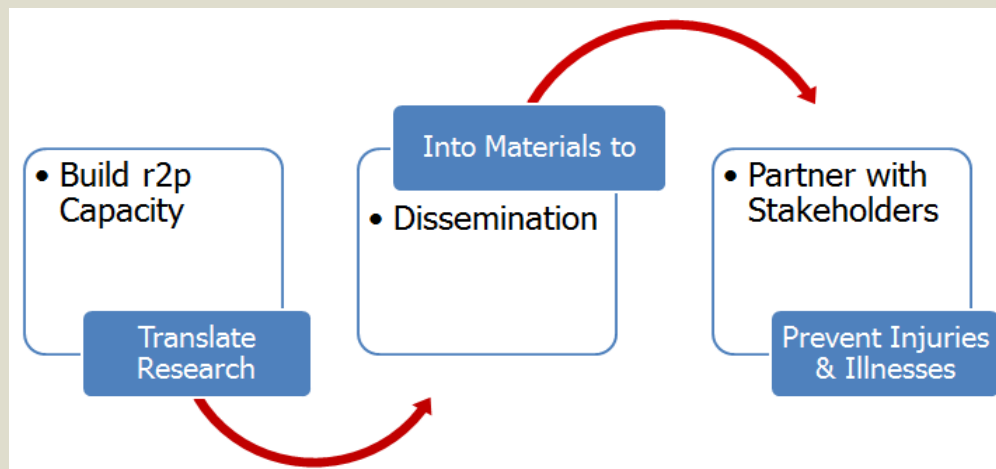
r2p Challenges

Industry

- Decentralized industry – no fixed worksites
- Small, often isolated and under-resourced contractors
- Diverse workforce

Dissemination

- Changing platforms and mechanisms for finding, receiving, sharing and **BLOCKING** information



Research Translation

Physicians' Alert:

Occupational Contact Dermatitis among Construction Workers

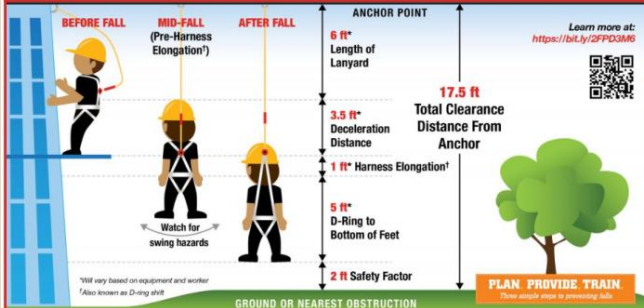
This Alert was developed to help ensure that all construction workers at risk of developing occupational contact dermatitis from work exposures are properly diagnosed and treated.

Please:

- (1) read and print this Alert;
- (2) keep the Best Practices tips to help you work safely; and

THE RIGHT LENGTH LANYARD WILL PROTECT WORKERS IN A FALL

Employers, do the math. Example Below.



Join the Campaign to
Stop Construction Falls!
www.stopconstructionfalls.com



CPWR – The Center for Construction Research and Training

Home Videos Playlists Channels Discussion About Q

Safety Lessons and Demonstrations

WATCHED 10:00
Drill Rig Health and Safety Outreach Video
by CPWR – The Center for Construction Research and Training
433 views • 5 months ago

12:50
Don't Fall For It – Detailed training on safe ladder use
by CPWR – The Center for Construction Research and Training
5,953 views • 1 year ago

2:31
Construction Work That's Out of Control
by CPWR – The Center for Construction Research and Training
108 views • 4 months ago

Lessons to Go Home Safe

True Stories of Hazards on the Job

3:11
No New Year – Trench Collapse
by CPWR – The Center for Construction Research and Training
3,653 views • 1 year ago

3:40
Look Up and Live – Overhead Power Line...
by CPWR – The Center for Construction Research and Training
6,372 views • 1 year ago

2:17
A Simple Task – Fatal Ladder Fall
by CPWR – The Center for Construction Research and Training
16,543 views • 1 year ago

Lessons to Go Home Safe - Español

2:37
Una Tarea Senoilla
by CPWR – The Center for Construction Research and Training
177 views • 7 months ago

4:24
Mira hacia arriba y vive
by CPWR – The Center for Construction Research and Training
163 views • 7 months ago

4:07
Sin Un Año Nuevo
by CPWR – The Center for Construction Research and Training
112 views • 7 months ago

CPWR  **TOOLBOX TALK**

Hot Weather

- Drink water every 15 minutes. Don't wait until you feel thirsty.
- Rest in shade or air-conditioning.
- Know the signs of heat stroke; it is a medical emergency.

CPWR 

CPWR  **IMPACT**



Sounding the Alarm on Dangerous Nail Guns

Research sparks awareness and federal agencies respond

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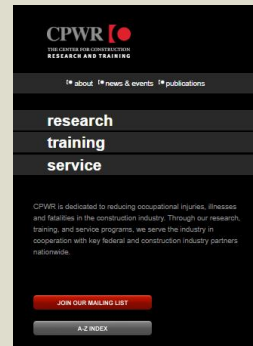


Dissemination

*Finding the best **mix** of
products and approaches*

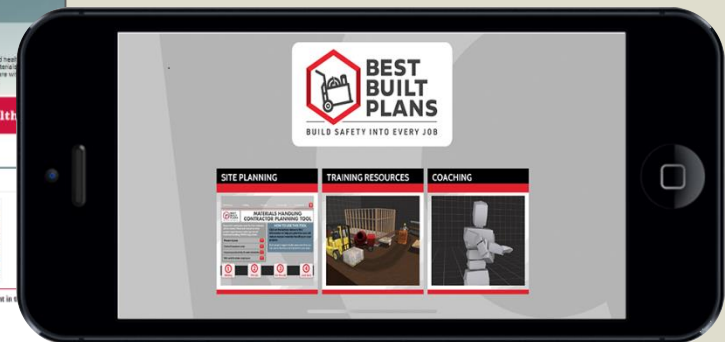
How Proactive Ergonomic Programs Protect Electricians

Electrical
contractors can
reduce lost time
and improve the
productivity
of their field
workforce



Safe Ladder Practices in Roofing

Falls are a leading cause of injury and death. This video – developed by the Roofing (r)p Partnership (National Roofing Contractors Association (NRCA) and the United Union of Roofers and Waterproofers & Allied Workers, and CPWR) – focuses on ladder safety during roofing work and shows how the free National Institute for Occupational Safety and Health (NIOSH) ladder safety app can help. The video is also available in Spanish. Find out more about the Roofing (r)p Partnership... [Read More](#)



Training Programs

RF Radiation Awareness

Why focus on RF?

- RF Radiation generating devices are installed on rooftops, sides of building, and on other structures where work is performed.
- Devices come in all different shapes and sizes and may be intentionally concealed
- RF Radiation is invisible!
- Inconsistent power levels
- The risk of exposure increases with the number of devices present, the closer a worker is to a device, and how long they work in and the RF field.

RADIOFREQUENCY (RF) RADIATION

AN INVISIBLE DANGER

Know the Basics...

What is it?
Radiofrequency (RF) radiation is the energy used to transmit information wirelessly.

Could you be exposed?
The answer is **YES** if you work on a rooftop, side of a building, or other location where cellular and other antennas that give off RF radiation are present.

Why is it dangerous?

- ▶ It's invisible
- ▶ Power levels can spike without warning
- ▶ Can interfere with medical devices (e.g. pacemakers)

Symptoms of overexposure

- Headache
- Reddening of the skin
- Dizziness
- Burns
- Labored breathing
- Overheating

Before you start work...

- ⚠ Ask the building owner, manager, or your supervisor if cellular or other RF-generating antennas are present.
- ⚠ Look for antennas and obey warning signs. Remember, some are hidden to blend into their surroundings.
- ⚠ Keep your distance—different types of antennas emit RF in different directions.

Learn more at: <https://cpwr.com/research/rf-radiation-awareness>






PHOTO CREDIT: PANCAKETOM/123RF

Faux chimney used to conceal 15 panel antennas.





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RF Radiation Awareness

Answers the questions:

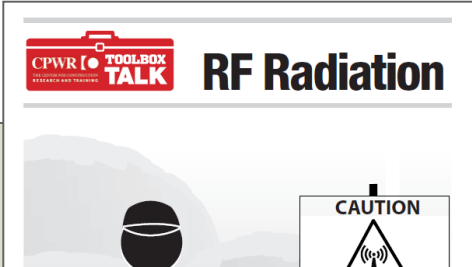
1. What is Radio Frequency (RF) Radiation?
2. What is it used for?
3. What are the potential health effects?
4. Who is at risk?
5. What regulatory requirements or voluntary standards apply?
6. What does a potential hazard look like?
7. What can be done to work safely?

Program includes:

- Guide
- Presentation
- Video
- Toolbox Talk
- Hazard Alert Card

Overview

1. Radiofrequency (RF) Radiation
2. Common Uses
3. Health Effects
4. At Risk Workers
5. Regulations & Guidelines
6. Hazard Identification



CPWR TOOLBOX TALK **RF Radiation**

CAUTION

• Ask your supervisor or the manufacturer for more information.
• Look for signs and/or bar codes.
• Keep your distance -- stay a group of antennas.



HAZARD ALERT

RF RADIATION

NOTICE

Radio frequency fields beyond this point may exceed the FCC general public exposure limit. Obey all posted signs and site guidelines for working in radio frequency environments.

An invisible danger



YouTube Search

Safe Transmission - RF Awareness for the Construction Industry

Best Built Plans

Significant research exists on the causes of injuries and the solutions, but adoption of solutions has been slow!

Barriers to adopting safer MMH practices:

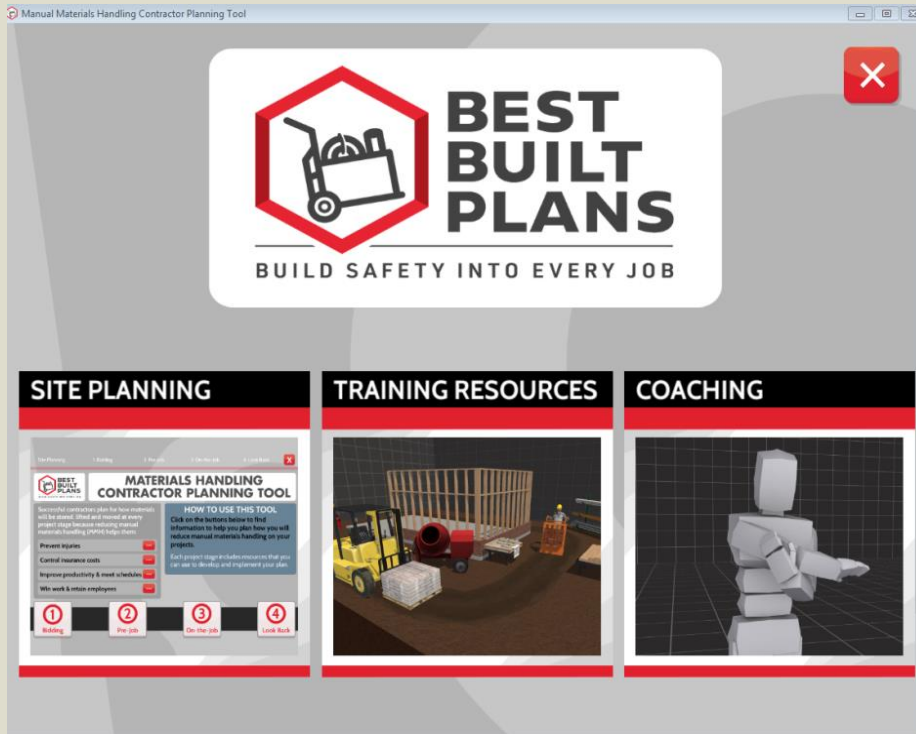
- Lack of awareness of the risks, solutions, and benefits of safer practices
- Lack of time to find and access to material weights and lifting and storage options
- Lack of organization and experience for planning

Positive practices identified:

- Planning to address risks by including equipment, practices, and procedures that would be used at each project stage
- Frequently communicating with employees and suppliers about how materials should be delivered and handled
- Actively engaging employees in the process



Best Built Plans



BEST BUILT PLANS: Preventing Injury & Improving Productivity by Reducing Manual Materials Handling

Manually lifting and moving heavy materials on job sites can result in strain, sprain, and related soft tissue injuries. These types of injuries cost business billions of dollars and are a leading cause of disabling injuries in the construction industry. **Best Built Plans** provides contractors and workers with practical tools and information to plan for safe materials handling while staying productive and profitable. (See article ["It's Time to Stop the Pain: Preventing Overexertion Injuries,"](#) CFMA Building Profits - The Magazine for Construction Financial Professionals.)

What's Available?

Site Planning Tool Tailored for use at each stage of a project, from preparing a bid to project completion, includes pre-set spreadsheets, material weights, storage and lifting options, daily checklists, training materials, hazard alert cards, toolbox talks, and related microgames.	Training Resources Interactive exercises with narration to increase a worker's understanding of the need to plan lifts, and to introduce equipment, work practices and lifting techniques that can help reduce the risk for injury.	Coaching Interactive exercises that introduce warm-up activities and the fundamentals of lifting practices and allows users to test their knowledge.
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► [Click here to access the Site Planning Tool online.](#)

► Download the **PC-based Site Planning Tool** and **Interactive Training and Coaching Resources** by clicking [HERE](#) and following the prompts.*

► **Need it on the go?** Download our **new free app** to access the whole program on your phone or tablet! It's available for both iOS and Android users. You can download it by clicking [HERE](#).

Find **infographics and posters** to reinforce safer materials handling practices [HERE](#). You can post them on job sites, or use them in printed materials, presentations, on your website, or social media.

As a new program, we want to learn from users what's working, what needs to be improved, and what other resources are needed. Please take a few minutes to share your feedback by taking this brief anonymous survey ([Click HERE](#)).



Best Built Plans: Planning Resources

Information on the business benefits of planning

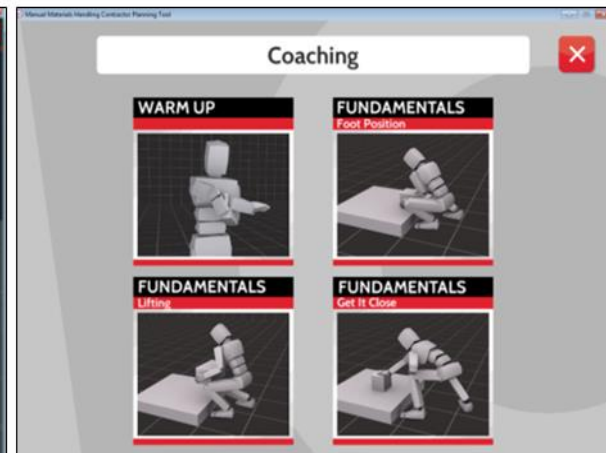
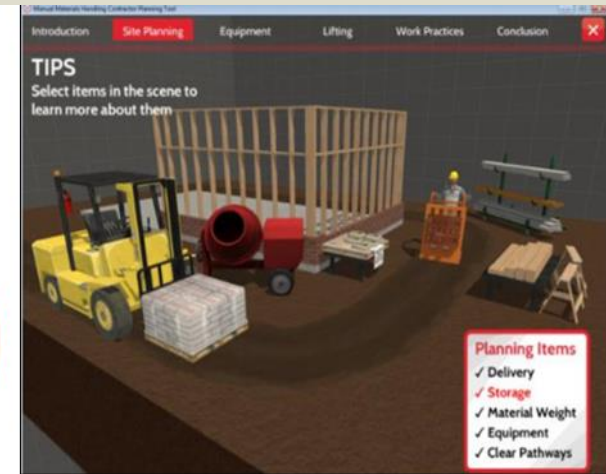
Key Questions & Resources to address barriers at each project stage:

1. Project bid
2. Before job starts
3. During construction
4. When the job ends

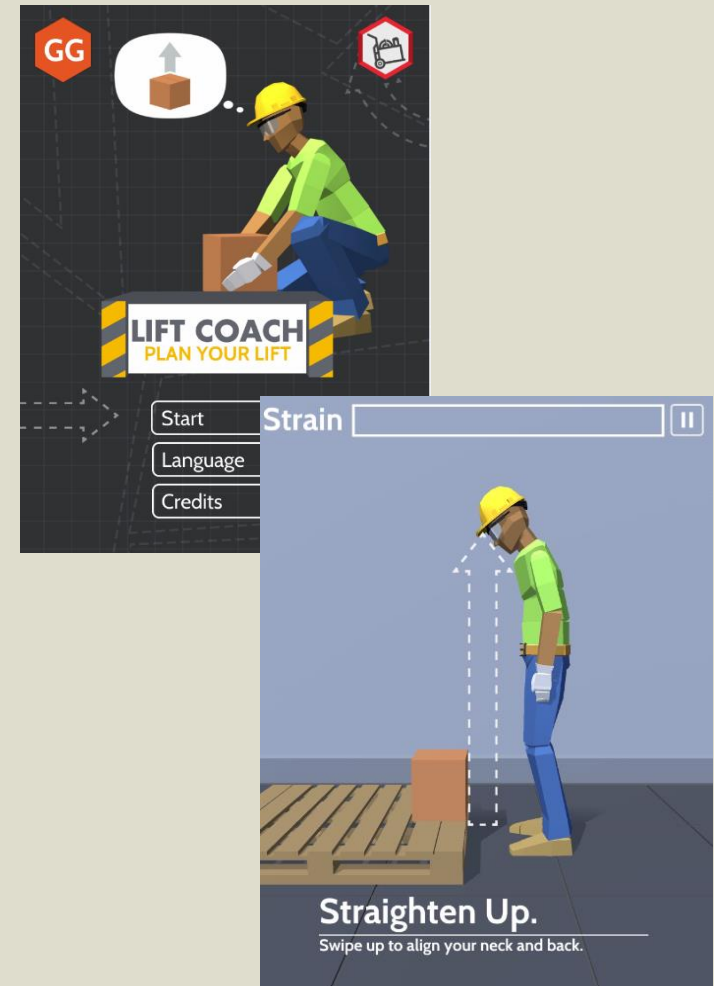


Best Built Plans: Coaching Resources

- Site planning
- Equipment
- Lifting
- Work Practices
- Coaching



Best Built Plans: Games & Resources



Best Built Plans: Promote the Message



**PLANNING TO REDUCE MANUAL MATERIALS HANDLING
IS AN IMPORTANT PART OF A STRONG SAFETY PROGRAM.**

Best Built Plans has resources to help contractors reduce manual materials handling in every stage of their projects, and see better returns as a result.

**PLANNING TO REDUCE MANUAL HANDLING OF HEAVY
MATERIALS CAN SAVE CONTRACTORS TIME AND MONEY.**

CONTRACTOR TIPS FOR REDUCING MANUAL MATERIALS HANDLING

**TIP
4**

Encourage lift teams

INSTEAD OF THIS



TRY THIS



SEE MORE SIMPLE STEPS YOU CAN TAKE AT BESTBUILTPLANS.ORG.



**Talk through your work plan every morning.
Leave safe every night.**

Your job site check-ins are the best times to flag heavy material lifts or moves that could lead to injury. Make a plan now so everybody gets home safe later.



Get simple steps you can take at BestBuiltPlans.org

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Best Built Plans Updates

Now in Spanish:

- All planning resources
- Infographics/posters
- Games
- Toolbox talks
- Hazard alerts

New

- Video (*English & Spanish*)
- App version of Planning, Training & Coaching

Comprehensive Ergonomics Training Program -- workers, train-the-trainer, and contractors – connect preventing pain with preventing opioid use and addiction

Herramienta de planificación para el contratista en relación con la manipulación de materiales



Herramienta De Planificación Para El Contratista En Relación Con La Manipulación De Materiales

Los contratistas exitosos planifican la forma en la que se almacenarán, cargarán y moverán los materiales para cada etapa del proyecto; lo hacen porque reducir la manipulación manual de materiales (MMH, por sus siglas en inglés) los ayuda a:

- Reducir lesiones ([más información](#))
- Controlar los gastos de seguro ([más información](#))
- Mejorar la productividad y cumplir con los plazos ([más información](#))
- Ganar trabajo y retener empleados ([más información](#))

Los Mejores Planes Creados ayuda a los contratistas de la construcción a perseguir la seguridad y el éxito comercial. ¿Cómo? Les proporciona herramientas para reducir la manipulación manual de materiales (MMH, por sus siglas en inglés).

Haga clic en los siguientes botones para obtener más información que lo ayudará a planificar cómo reducirá la manipulación manual de materiales en sus proyectos. Todas las etapas de un proyecto incluyen recursos que puede usar para desarrollar e implementar su plan.



STRAINS & SPRAINS

High Premiums

Lost Productivity

Medical Costs

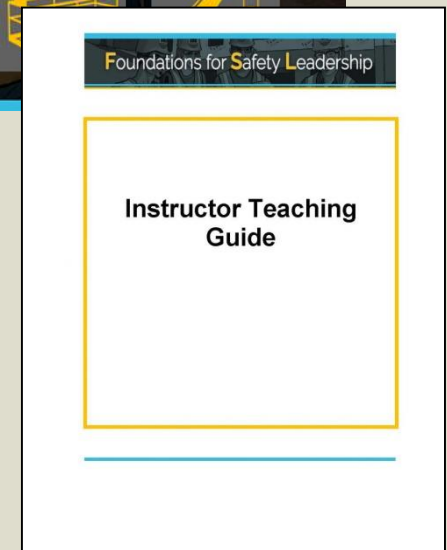
Lost Wages



Foundations for Safety Leadership (FSL)

5 Critical Leadership Skills

Leads by example
Engages and empowers team members
Actively listens and practices three-way communication
Develops team members through teaching, coaching, & feedback
Recognizes team members for a job well done



Foundations for Safety Leadership (FSL)

Primary Training Materials –

- PowerPoint (PC or Mac)
- Instructor Guide
- Student Handout
- Additional Scenarios
- Paper Airplane Activity
- Posters
- Certificate of Completion
- FAQ

Train the Trainer Materials and Resources

- PowerPoint presentation (40 mins)
- Videos of FSL training program being taught by experienced instructors

Additional Resources –

- Toolbox Talks
- Pocket reference card
- FSL Handbook & Self-assessment/Action plan
- Hardhat sticker
- Create your own scenario worksheet
- *FSL and Lean Construction Principles (New)*
- Pre & Post Training surveys (New)
- Infographics (New)
- IMPACT Card (New)

Construction Noise & Hearing Loss Prevention

1-Hour Elective Module (provides materials to fulfill 1 hour of the 2 hour training requirement for Health Hazards in the OSHA 30)

- Instructor Manual
- Presentation

30-Minute Elective Module (designed to fulfill the 10-hour program requirement for a half-hour module on a health hazard)

- Instructor Manual
- Presentation

What causes hearing loss?

- ☐ Exposure to loud noise
- ☐ Certain drugs and chemicals
- ☐ Aging
- ☐ Heredity
- ☐ Head injury
- ☐ Headphone use
- ☐ Childhood illness




Photo courtesy of the International Brotherhood of Electrical Workers



Construction Noise & Hearing Loss Prevention

could hearing loss impact you?



Frank Albert, Business Rep
IBEW Local 340

Exercise A-1

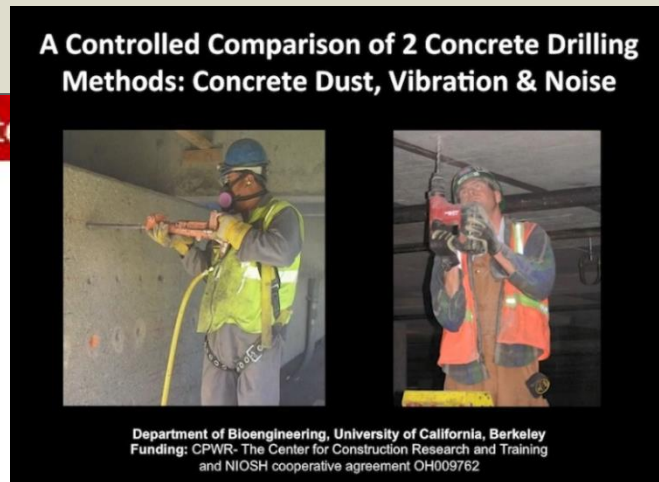
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Construction Noise & Hearing Loss Prevention

In-Class & Hands-On Refresher Exercises (short 10-15 minute reinforcement exercises)

- Instructor Manual
- Presentations for Noise Training Exercises for use in OSHA 10- & 30-hour modules
- Presentations for Noise Training Exercises for Use In-Class for Skills Training Programs
- Noise Training Exercises for Use in the Hands-On Portion of Skills Training Programs

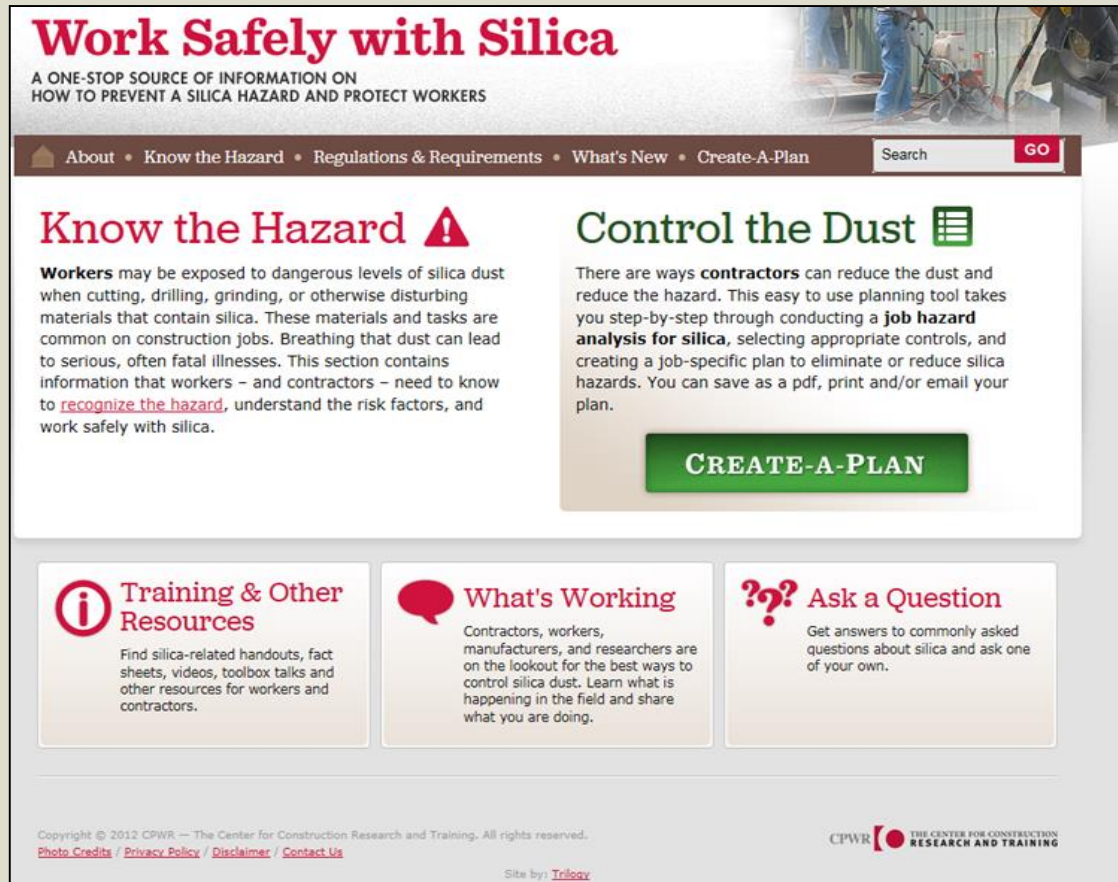
Links to Additional Resources



Web Resources

Work Safely with Silica

- About
 - Regulations & Requirements
 - What's New
- Know the Hazard
- Training & Other Resources
- What's Working
- Ask a Question
- Control the Dust: Create-A-Plan tool



Work Safely with Silica
A ONE-STOP SOURCE OF INFORMATION ON
HOW TO PREVENT A SILICA HAZARD AND PROTECT WORKERS

About • Know the Hazard • Regulations & Requirements • What's New • Create-A-Plan

Search **GO**

Know the Hazard

Workers may be exposed to dangerous levels of silica dust when cutting, drilling, grinding, or otherwise disturbing materials that contain silica. These materials and tasks are common on construction jobs. Breathing that dust can lead to serious, often fatal illnesses. This section contains information that workers – and contractors – need to know to [recognize the hazard](#), understand the risk factors, and work safely with silica.

Control the Dust

There are ways **contractors** can reduce the dust and reduce the hazard. This easy to use planning tool takes you step-by-step through conducting a **job hazard analysis for silica**, selecting appropriate controls, and creating a job-specific plan to eliminate or reduce silica hazards. You can save as a pdf, print and/or email your plan.

CREATE-A-PLAN

Training & Other Resources

Find silica-related handouts, fact sheets, videos, toolbox talks and other resources for workers and contractors.

What's Working


Contractors, workers, manufacturers, and researchers are on the lookout for the best ways to control silica dust. Learn what is happening in the field and share what you are doing.

Ask a Question

Get answers to commonly asked questions about silica and ask one of your own.

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Site by: [Trilogy](#)

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Create-A-Plan: Step 1

Create-A-Plan to Control the Dust

You do not need to register to use the planning tool, however, registering will allow you to **confidentially** save, retrieve, edit, rename or delete saved plans. Only **registered** users can access to your saved plans.

Returning users login below.

Email

Password

REGISTER

LOGIN

[Forgot your password?](#)

1

CLEAR THE PLAN

Step 1. Will you generate dust containing silica on the job?

The materials listed below contain silica. Select all of the materials you plan to use. As you select a material a list of dust generating tasks will appear. Please select the task(s) that you will perform with the material.

How does the Create-A-Plan tool work?

2

- | | |
|--|--|
| <input type="checkbox"/> Asphalt | <input type="checkbox"/> Refractory Units |
| <input type="checkbox"/> Brick | <input type="checkbox"/> Rock |
| <input type="checkbox"/> Cement | <input type="checkbox"/> Roof Tile (concrete) |
| <input type="checkbox"/> Concrete | <input type="checkbox"/> Sand |
| <input type="checkbox"/> Concrete Block | <input type="checkbox"/> Sand - Frac Sand |
| <input type="checkbox"/> Drywall | <input type="checkbox"/> Soil (fill dirt, top soil, soil w/ fly ash added) |
| <input type="checkbox"/> Fiber Cement products | <input type="checkbox"/> Stone (including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.) |
| <input type="checkbox"/> Grout | <input type="checkbox"/> Stucco/EIFS |
| <input type="checkbox"/> Gunite/Shotcrete | <input type="checkbox"/> Terrazzo |
| <input type="checkbox"/> Mortar | <input type="checkbox"/> Tile (clay and ceramic) |
| <input type="checkbox"/> Paints containing silica | <input type="checkbox"/> Material Other |
| <input type="checkbox"/> Plaster | |
| <input type="checkbox"/> Refractory Mortar/Castables | |

CONTINUE

If you will not be using one of the materials listed above or another silica-containing material,

You Don't Need a Silica Control Plan.

If you are not sure if a material contains silica, there are several ways you can find out... [learn more](#).

3

To find out if a material contains silica:

Option 1 - Check the label: OSHA's silica standard requires employers to include silica in their program to comply with the hazard communication standard. OSHA's Hazard Communication Standard requires materials containing silica to be labeled. [Learn more](#)

Option 2 - Check the Safety Data Sheet [Learn more](#)

Option 3 - Review the published data [Learn more](#)

Option 4 - Analyze a sample of the material [Learn more](#)

[RETURN TO YOUR SILICA CONTROL PLAN](#)

Create-A-Plan: Step 1 (g)(1)(i)

Step 1. Will you generate dust containing silica on the job?

The materials listed below contain silica. Select all of the materials you plan to use. As you select a material a list of dust generating tasks will appear. Please select the task(s) that you will perform with the material.

How does the Create-A-Plan tool work?

Materials & tasks involving exposure to silica

<input type="checkbox"/> Asphalt <input type="checkbox"/> Brick <input type="checkbox"/> Cement <input checked="" type="checkbox"/> Concrete <div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Abrasive blasting <input type="checkbox"/> Bushhammering <input type="checkbox"/> Cutting/sawing <input type="checkbox"/> Demolishing/disturbing <input checked="" type="checkbox"/> Drilling/coring <input type="checkbox"/> Earthmoving <input type="checkbox"/> Frac sand cleanup <input type="checkbox"/> Frac sand mixing <input type="checkbox"/> Frac sand offloading <input type="checkbox"/> Frac sand onloading <input type="checkbox"/> Frac sand transferring <input type="checkbox"/> Grinding <input type="checkbox"/> Other </div> <input type="checkbox"/> Concrete Block <input type="checkbox"/> Drywall <input type="checkbox"/> Fiber Cement products <input type="checkbox"/> Grout <input type="checkbox"/> Gunit/Shotcrete <input type="checkbox"/> Mortar <input type="checkbox"/> Paints containing silica <input type="checkbox"/> Plaster <input type="checkbox"/> Refractory Mortar/Castables	<input type="checkbox"/> Refractory Units <input checked="" type="checkbox"/> Rock <div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Abrasive blasting <input type="checkbox"/> Bushhammering <input type="checkbox"/> Cutting/sawing <input type="checkbox"/> Demolishing/disturbing <input type="checkbox"/> Drilling/coring <input type="checkbox"/> Earthmoving <input type="checkbox"/> Frac sand cleanup <input type="checkbox"/> Frac sand mixing <input type="checkbox"/> Frac sand offloading <input type="checkbox"/> Frac sand onloading <input type="checkbox"/> Frac sand transferring <input type="checkbox"/> Grinding <input type="checkbox"/> Other </div> <input type="checkbox"/> Roof Tile (concrete) <input type="checkbox"/> Sand <input type="checkbox"/> Sand - Frac Sand <input type="checkbox"/> Soil (fill dirt, top soil, soil w/ fly ash added) <input type="checkbox"/> Stone (including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.) <input type="checkbox"/> Stucco/EIFS <input type="checkbox"/> Terrazzo <input type="checkbox"/> Tile (clay and ceramic) <input type="checkbox"/> Material Other
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CONTINUE

Create-A-Plan: Step 2

[Step One](#)

[CLEAR THE PLAN](#)

Step 2. How do you plan to control the dust?

Select the type of equipment and dust control you plan to use for each material and task you selected in Step 1.

Not Sure - Perform Air Monitoring.

To find the exposure control methods in OSHA's silica standard, learn about air monitoring, or to find studies and data on the use of controls [click here](#). To give users the greatest flexibility, any material-task combination may be used. For uncommon combinations or those not typically performed, the default control is respiratory protection.

1 Concrete - Drilling/coring

Select the Equipment/Control:

[Click here](#) for examples of commercially available equipment and controls.

- ☐ Anchor System
- ☐ Core Drill with Dust Extraction
- ☐ Core Drill with Water (Table 1 Entry)
- ☐ Dowel Drilling with Dust Collection (Table 1 Entry)
- ☐ Drill Press with Hand-Held Drill and Vacuum (Table 1 Entry)
- ☐ Hand-Held Drill with Dust Extraction (Table 1 Entry)
- ☐ Hand-Held Drill with Hollow Drill Bit Extraction
- ☐ Hand-Held Drill with Vacuum (Table 1 Entry)
- ☐ Other

2 Concrete - Jackhammering

Select the Equipment/Control:

[Click here](#) for examples of commercially available equipment and controls.

- ☐ Hand-Held Breaker with Dust Extraction (Table 1 Entry)
- ☐ Jackhammer with Vacuum (Table 1 Entry)
- ☐ Jackhammer with Water (Table 1 Entry)
- ☐ Mounted Chipping Tool with Water
- ☐ Other

3 Rock - Jackhammering

Select the Equipment/Control:

[Click here](#) for examples of commercially available equipment and controls.

- ☐ Jackhammer with Vacuum (Table 1 Entry)
- ☐ Jackhammer with Water (Table 1 Entry)
- ☐ Other

More information to help you decide how to control the dust:

Option 1 - OSHA Exposure Control Methods: The exposure control methods and respiratory requirements specified in the OSHA silica standard.

[Learn More](#)

Option 2 - Perform Air Monitoring:

Information on how to find an industrial hygienist to conduct air monitoring, questions to ask, and what's involved. [Learn More](#)

Option 3 - Studies and Data on the Use of Dust Controls:

Summaries of research findings, reports, and data. [Learn more](#)

Option 4 - OSHA's On-site Consultation Program: [Learn More](#)

[RETURN TO YOUR SILICA CONTROL PLAN](#)

Create-A-Plan: Step 2 (g)(1)(ii)

[Step One](#)

CLEAR THE PLAN

Step 2. How do you plan to control the dust?

Select the type of equipment and dust control you plan to use. *Not Sure - Perform Air Monitoring.*

To find the exposure control methods in OSHA's silica standard use of controls [click here](#). To give users the greatest flexibility For uncommon combinations or those not typically performed

Engineering controls, work practices, and respiratory protection for each task

Describe the specific task and equipment/control you plan to use for this job.

1 Concrete - Drilling/coring

Select the Equipment/Control:

[Click here](#) for examples of commercially available equipment and controls.

- ☐ Anchor System
- ☐ Core Drill with Dust Extraction
- ☐ Core Drill with Water (Table 1 Entry)
- ☐ Dowel Drilling with Dust Collection (Table 1 Entry)
- ☐ Drill Press with Hand-Held Drill and Vacuum (Table 1 Entry)
- ☐ Hand-Held Drill with Dust Extraction (Table 1 Entry)
- ☐ Hand-Held Drill with Hollow Drill Bit Extraction
- ☐ Hand-Held Drill with Vacuum (Table 1 Entry)
- ☐ Other

2 Concrete - Jackhammering

Select the Equipment/Control:

[Click here](#) for examples of commercially available equipment and controls.

- ☐ Hand-Held Breaker with Dust Extraction (Table 1 Entry)
- ☐ Jackhammer with Vacuum (Table 1 Entry)
- ☐ Jackhammer with Water (Table 1 Entry)
- ☐ Mounted Chipping Tool with Water
- ☐ Other

3 Rock - Jackhammering


Select the Equipment/Control:


[Click here](#) for examples of commercially available equipment and controls.


- ☐ Jackhammer with Vacuum (Table 1 Entry)
- ☐ Jackhammer with Water (Table 1 Entry)
- ☐ Other


Drill Press with Hand-Held Drill and Vacuum (Table 1 Entry)


1. Telpro Inc. Drillrite w/ Hilti TE 7 Rotary Hammer Drill & Vacuum


 See how it works


 Manufacturer: Telpro Overhead Concrete Drill Press

 Manufacturer: Hilti Drill


 Manufacturer: Hilti Vacuum


 Learn More: Table 1 - Equipment Names and Best Practice Tips


 Learn More: Construction Solutions


 Learn More: Return on Investment - Overhead Drill Press & Dust Control

2. ErgoMek LLC DrillBoss w/ Hilti TE 70 Combthammer Drill & Vacuum

 See how it works

 See how it works

 Manufacturer: ErgoMek LLC DrillBoss

 Manufacturer: Hilti Combthammer

[RETURN TO YOUR SILICA CONTROL PLAN](#)

*CPWR does not endorse any specific equipment or product. Many factors influence the effectiveness of a control including maintenance, user skill and training, the appropriateness of the equipment/control for the task, and manufacturer instructions/requirements. Respiratory protection may be needed when controls do not bring the silica exposures down to or below OSHA's Permissible Exposure Limit (PEL).

Create-A-Plan: Step 3

Step One > Step Two [CLEAR THE PLAN](#)

Step 3. Complete your Silica Control Plan

Company:

Person Completing the Plan/Title:

Jobsite/Project:

Description of Work:

Description of work

Please fill in the name and title of the person assigned as the competent person for silica on the project. Required by 29 CFR 1926.1153 (g)(4).
[Click here](#) for an explanation of what a competent person is, why it is important to assign one for silica, and what this person should know and on the job.

Exposure Assessment and Controls

1

Materials: Concrete **Task:** Drilling/coring
Equipment and Control(s): 1) Core Drill with Dust Extraction, 2) Drill Press with Hand-Held Drill and Vacuum (Table 1 Entry)
Task/Control Description: NOTE - this is a blank text space that could be used to enter specific information about how and where you will perform the task and use the equipment, as well as any other information that would be useful for the foreman, competent person, and other employees to know.

2

Materials: Concrete **Task:** Jackhammering
Equipment and Control(s): Hand-Held Breaker with Dust Extraction (Table 1 Entry)

3

Materials: Rock **Task:** Jackhammering
Equipment and Control(s): Jackhammer with Water (Table 1 Entry)

Please describe the procedures to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors. Required by 29 CFR 1926.1153 (g)(1)(iv)

Restricting Access (g)(1)(iv)

Please use the space below to describe the training that will be provided to workers engaged in dust-producing tasks and those working nearby.
[Click here](#) for an explanation of the elements of a worker-training program. Materials to help you conduct your training program are available on this site - just click "Training and Other Resources."

Click here forTraining (i)

Please use the space below to describe the housekeeping measures that will be used on the project to limit employee exposure to respirable crystalline silica. Required by 29 CFR 1926.1153 (g)(1)(iii)
[Click here](#) to learn more about recommended housekeeping activities.

Housekeeping (g)(1)(iii)

Please use the space below to describe medical surveillance that will be provided to workers exposed to silica dust.
[Click here](#) to learn more about medical surveillance. Additional materials on the risk, information workers should provide their physicians, and steps to work safely with silica are available on this site - just click "Know the Hazard."

Medical Surveillance (h)

Please use the space below to describe other things that need to be taken into consideration when controlling dust on this project.
[Click here](#) to learn more about possible things to consider.

Other Considerations

Competent Person (g)(4)

CONTINUE

Final Plan

[Step One](#) > [Step Two](#) > [Step Three](#)

[CLEAR THE PLAN](#)

Your Silica Control Plan

Company:
Test Company

Person Completing the Plan/Title:
John Doe

Jobsite/Project:
Test Project

Description of Work:
This space can be used to provide additional information on the project, such as the location, size, other information that would be useful for the foreman, competent person, workers...

Competent Person:
Jane Doe

1 **Material** **Task**
Concrete Drilling/coring

Equipment and Control(s)
1) Core Drill with Dust Extraction, 2) Drill Press with Hand-Held Drill and Vacuum (Table 1 Entry)

Task/Control Description
NOTE - this is a blank text space that could be used to enter specific information about how and where you will perform the task and use the equipment, as well as any other information that would be useful for the foreman, competent person, and other employees to know.

2 **Material** **Task**
Concrete Jackhammering

Equipment and Control(s)
Hand-Held Breaker with Dust Extraction (Table 1 Entry)

3 **Material** **Task**
Rock Jackhammering

Equipment and Control(s)
Jackhammer with Water (Table 1 Entry)

**Print/ Email/Download/
Save Your Plan
(g)(2) & (3)**

Safety of Others:

Space to describe steps that will be taken to ensure other workers are not exposed to hazardous levels of silica dust.

Worker Training:

Space to describe how the requirements under section (i) Communicating the hazard will be addressed.

Housekeeping:

Space to describe how the project will comply with the housekeeping requirements in the standard.

Medical Surveillance:

Space to describe the medical surveillance program section (h)

Other Considerations:

Additional space to include other information that and employer may want to convey to those responsible for implementing the silica control plan.

[PRINT](#)

[EMAIL](#)

[DOWNLOAD AS PDF](#)

[SAVE YOUR PLAN](#)

[CLEAR THE PLAN](#)

Having Trouble Downloading?

If you get a "Network Error" or have another issue when downloading in **Chrome**, try the following:



1. Click on Print;
2. Click on the "Change" button under "Destination";
3. Select "Save as PDF";
4. Click "Save".

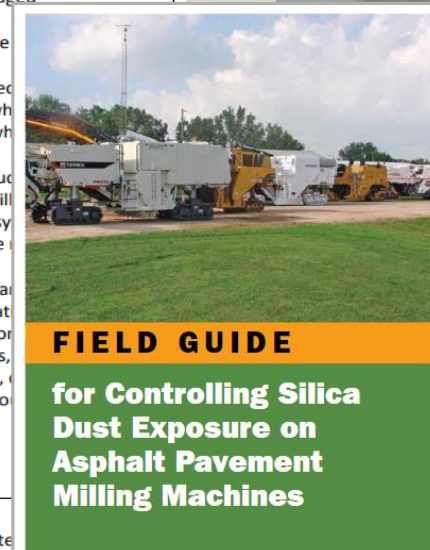
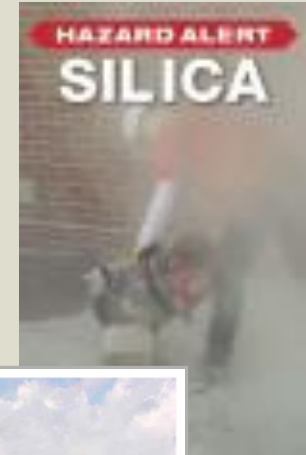
This will save a PDF version of your plan to your computer. Alternately, you can use another browser (such as Firefox).

Work Safely with Silica

Table 1 – Equipment Names and Best Practice Tips – Update September 2018

- Includes equipment terms commonly used by different trades and in different geographic areas
- 'Best practice' tips are intended to help employers and their employees operate the equipment-control options effectively and are based on 1) [OSHA's Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction](#); 2) [OSHA's Frequently Asked Questions \("FAQs"\) for the Construction Industry](#); 3) [silica standard's Table 1](#); 4) manufacturer specifications; and 5) craft worker/contractor input based on experience in the field.

Equipment/ Control	Photo & Video	Engineering, Work Practice Control Methods & Required Respiratory Protection	Best Practice Tips
(i) Stationary masonry saws Other Names: Table saw Brick/block saw Tile saw ⁴	 <i>Photo courtesy of the International Masonry Institute & OSHA</i>  <i>Video courtesy of OSHA</i> https://www.youtube.com/watch?v=WtoBc34EbBg English & Spanish subtitle options included.	CONTROL: water <ul style="list-style-type: none"> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Required Respiratory Protection: <ul style="list-style-type: none"> ≤4 hours/shift: NONE >4 hours/shift: NONE 	OSHA ¹ requires the employer to ensure that: <ul style="list-style-type: none"> The saw is equipped with an integrated water delivery system (commercially developed specifically for the type of tool in use) An adequate supply of water for dust suppression is used The spray nozzle is working properly to apply water at the point of dust generation The spray nozzle is not clogged or damaged All hoses and connections are intact Water is applied at least at the flow rate manufacturer Additional exhaust is provided as needed accumulation of visible airborne dust when indoors or in an enclosed space (area which can build up) Additional means of exhaust could include (e.g. box fans, floor fans, axial fans, oscillating portable ventilation systems, or other systems to increase air movement and assist in the dispersion of airborne dust⁴) "Indoors or in enclosed areas" refer to areas without the assistance of forced ventilation, impeded and confined spaces, pits, trenches, excavations with 3 walls, or other areas where air movement is restricted





Construction Solutions ROI CALCULATOR

Register | Forgot Password?

Email Password Login

The ROI Calculator helps evaluate the financial impact of new equipment introduced to improve safety. Materials and work practices can also be evaluated. [Click here to see a demonstration of the Calculator.](#)

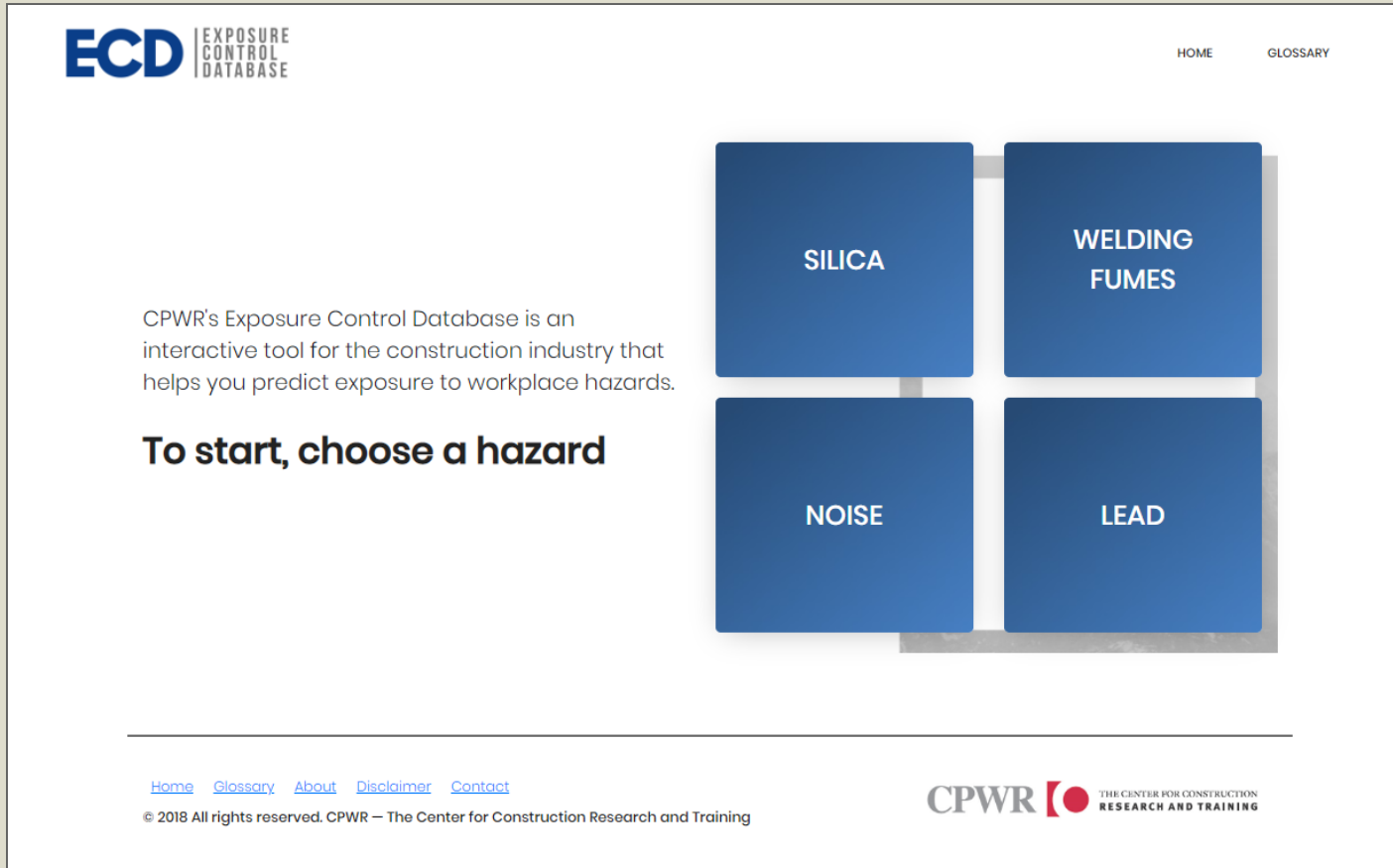
- Enter costs for equipment, materials, training, productivity and injuries
- View total costs
- Enter data per project or annually
- Compare cost assumptions
- Click on the  for guidance
- Register to save results



[About](#) | [Contact](#) | [Construction Solutions](#) | [Silica Safe](#) | [Feedback](#) | [Privacy Policy](#) | [Disclaimer](#)

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Exposure Control Database



The screenshot shows the ECD website interface. At the top left is the ECD logo with the text "EXPOSURE CONTROL DATABASE". At the top right are links for "HOME" and "GLOSSARY". The main content area features a 2x2 grid of blue squares, each representing a hazard: "SILICA", "WELDING FUMES", "NOISE", and "LEAD". To the left of this grid, a paragraph states: "CPWR's Exposure Control Database is an interactive tool for the construction industry that helps you predict exposure to workplace hazards." Below this paragraph is the instruction "To start, choose a hazard". At the bottom of the page, there is a footer with links for "Home", "Glossary", "About", "Disclaimer", and "Contact", followed by the copyright notice "© 2018 All rights reserved. CPWR — The Center for Construction Research and Training". The CPWR logo and name are also present in the bottom right corner of the footer area.

ECD | EXPOSURE
CONTROL
DATABASE

HOME GLOSSARY

CPWR's Exposure Control Database is an interactive tool for the construction industry that helps you predict exposure to workplace hazards.


To start, choose a hazard

SILICA WELDING FUMES

NOISE LEAD

[Home](#) [Glossary](#) [About](#) [Disclaimer](#) [Contact](#)


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CPWR  THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

To share data, contact Sara Brooks at sbrooks@cpwr.com

Stop Construction Falls

- Information About the Fall Prevention Campaign
- How to Participate in the Annual Safety Stand-Down
- Tools & Resources to Prevent Falls
- CPWR Fatality Maps



The screenshot shows the homepage of the Stop Construction Falls website. At the top, there is a logo of a person falling from a height, with the tagline "Safety Pays. Falls Cost." and navigation links: "About", "Fatality Map", "Training & Resources", and "What's New". The main visual is a map of North America, including parts of Canada and the United States, with numerous orange pins placed across the landmasses, representing construction fatalities. The title "Construction Fatalities" is overlaid on the map. Below the map, there are three columns of text:

- About the Campaign**
Interested in joining the Campaign? Learn how to [Get Involved!](#)
The Campaign to Prevent Falls in Construction began in 2012 with construction industry stakeholders seeking a way to raise awareness. Falls from heights are the leading cause of injuries and fatalities in construction, with those coming disproportionately from small residential construction contractors.
Falls kill – they are the top cause of construction fatalities and account for one-third of on-the-job injury deaths in the industry. Each year in the U.S. more than 300 construction workers are killed and
- Keep Your Fall Prevention Program Alive All Year Long**
The 2019 Stand-Down may be over, but fall prevention should be highlighted on jobsites all year long! For ways to build off the momentum of the annual Stand-Down, check out [these ideas](#).
If you missed the official Stand-Down, but would like to hold one on your jobsite(s), learn more [here](#).
- A Social Network Analysis of the Falls Campaign**
The reach of this Campaign and the National Safety Stand-Down has been extensive – with millions of workers pausing work to learn more about fall prevention and staying safe on the job. But what exactly has made it so successful? How has word spread so that so many companies participate each and every year? To find out, CPWR – The Center for Construction Research & Training worked with the Center on Network Science (CNS) at the University of Colorado Denver, to conduct a Social Network Analysis (SNA) on the network of partners that has been developed through

Stop Construction Falls: One Stop Shop

Planning Materials –

- Written Fall Protection Plan
- Stand-Down 5-Day Plan
- Social Media Guide

Handouts for Workers

- CPWR-NIOSH infographics
- Hazard Alert Cards
- Hardhat Stickers

Training Materials & Resources

- Toolbox Talks
- Training Guides
- Activities
- Videos

Infographics & Other Posters for the Jobsite

2019 Stand-Down May 6th-10th
StopConstructionFalls.com



**HOLDING A STAND-DOWN:
DAY BY DAY PLAN**

There is no one way to hold a stand-down, so please feel free to get creative and do what works for your employees and jobsites. For even more resources and ideas, visit stopconstructionfalls.com.

MONDAY – MAKE THE CASE FOR FOCUSING ON FALLS

Despite the risk of a fall being so high, and many workers having seen a severe fall firsthand, some may still feel that they are not at risk for falls, or that “it can’t happen to them.” Using real life stories and statistics can help bring the Stand-Down home and make workers more interested in participating in training and other activities. Ways to make the case for focusing on falls include:

HAVE A RESCUE PLAN TO PREVENT SUSPENSION TRAUMA
The American Society of Safety (ASSS) has developed the following guidelines:

- 1. Have workers in pairs and assign rescue teams. If a worker becomes suspended, the rescue team must be able to rescue the worker.
- 2. Have workers in pairs and assign rescue teams. If a worker becomes suspended, the rescue team must be able to rescue the worker.
- 3. Have workers in pairs and assign rescue teams. If a worker becomes suspended, the rescue team must be able to rescue the worker.
- 4. Have workers in pairs and assign rescue teams. If a worker becomes suspended, the rescue team must be able to rescue the worker.

1. Use CPWR-NIOSH infographics to share statistics on fall risk. Four new infographics are available this year, including:
2. Use social media to share fall risk information.
3. Check for fall hazards on the jobsite.
4. Use the Stand-Down Plan to focus on falls.

A SNAPSHOT OF FATAL FALLS IN CONSTRUCTION

Most work-related fatal falls occur among workers over age 45.

The South has the most falls.

Hispanics are 29% of the construction workforce but account for 39% of fatal falls – a lower fatality rate.

PLAN, PROVIDE, TRAIN
Three simple steps to preventing falls.

Join the Campaign to Stop Construction Falls!
www.stopconstructionfalls.com

FALL PROTECTION PLAN

CPWR – The Center for Construction Research and Training created this document as part of the National Campaign to Prevent Falls in Construction to provide companies with guidance on how to develop or enhance their site-specific fall protection plans. While OSHA only requires a written fall protection plan for employees engaged in leading edge work, precast concrete erection work, or residential construction work who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment (See 1926.501(b)(2), (b)(12), and (b)(13)), CPWR believes that developing and implementing a detailed fall protection plan is essential to protect all workers at risk for a fall. We encourage you to use any and all sections that are applicable to your jobsite(s).

Note: blue text indicates that a word can be found in the glossary at the end of this packet.

For more information about the National Campaign to Prevent Falls in Construction, including how to participate in the annual Safety Stand-Down, visit stopconstructionfalls.com.

Job Name: _____

Jobsite Phone: _____

Job Address: _____

Job Foreman: _____

Qualified Person: _____

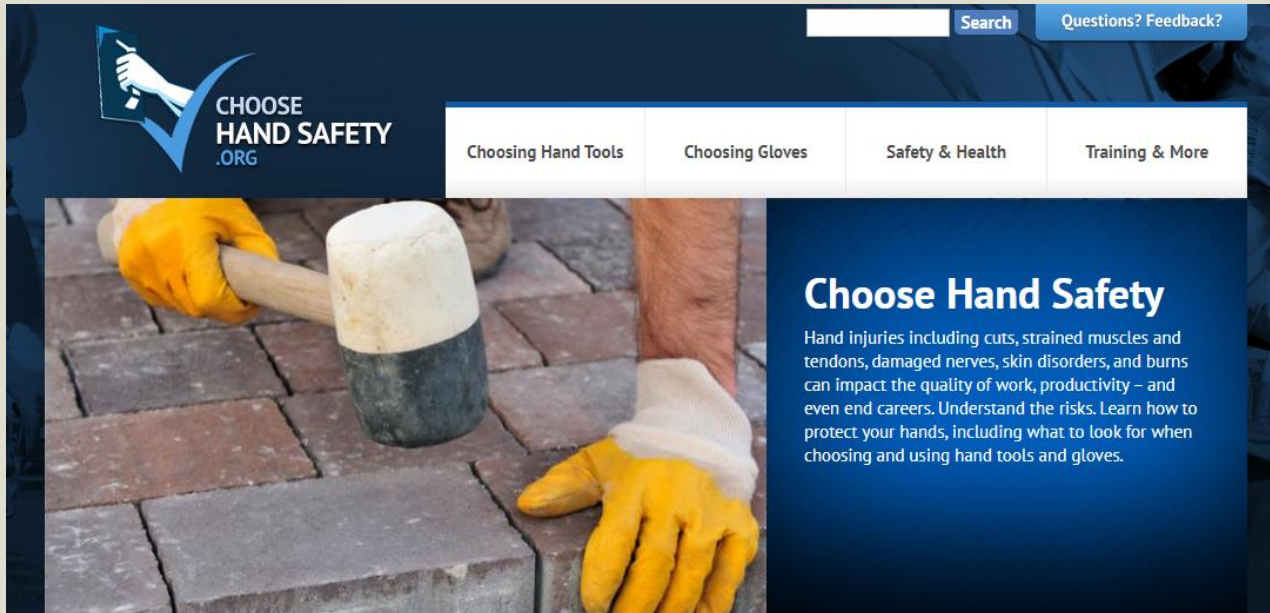
2019 STAND-DOWN



StopConstructionFalls.com

PLAN, PROVIDE, TRAIN. Three simple steps to preventing falls.

Choose Hand Safety



CHOOSE HAND SAFETY .ORG

Search Questions? Feedback?

Choosing Hand Tools Choosing Gloves Safety & Health Training & More

Choose Hand Safety

Hand injuries including cuts, strained muscles and tendons, damaged nerves, skin disorders, and burns can impact the quality of work, productivity – and even end careers. Understand the risks. Learn how to protect your hands, including what to look for when choosing and using hand tools and gloves.

Choosing Hand Tools



You may not give much thought to the handles on your hand tools, but you should. They are the only physical connection between you and your tools. In a normal workday, you may work with these tools for six or more hours. Using the right size handle can reduce

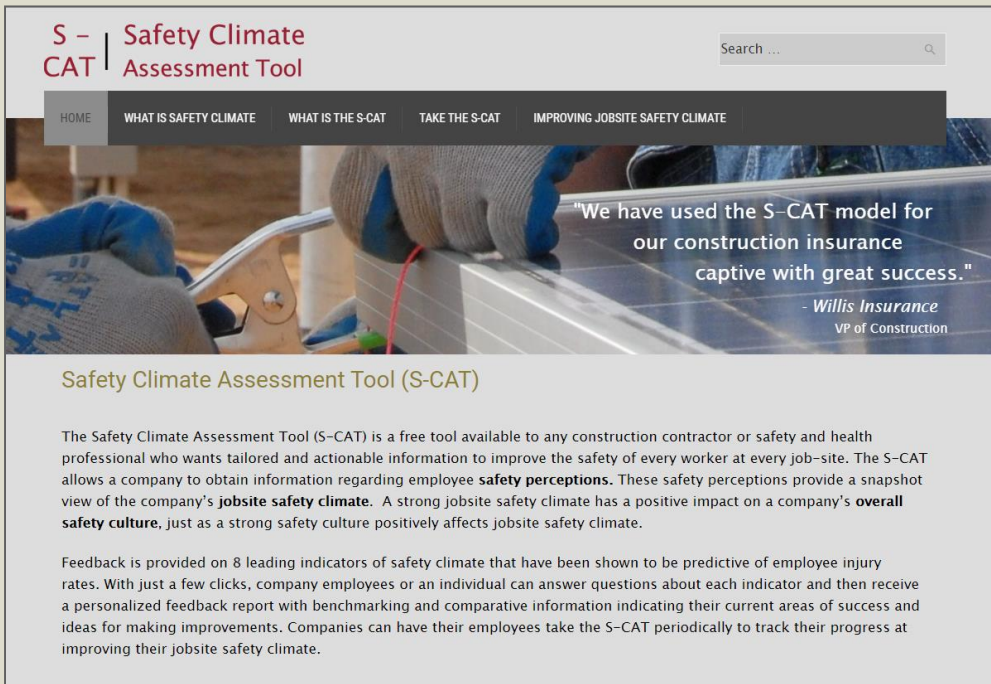
Choosing Gloves



OSHA recommends that "gloves be selected based on the task that will be performed, the chemicals encountered, and the performance and construction characteristics of the glove material." Selecting the right gloves can be challenging. This

Safety Climate Assessment Tools

- Safety Climate Assessment Tool (S-CAT)
safetyclimateassessment.com
- Safety Climate Assessment Tool for Small Contractors (S-CAT^{sc})
www.cpwr.com/research/s-cat-sc-small-contractors



The screenshot shows the homepage of the Safety Climate Assessment Tool (S-CAT). The header includes the text "S - CAT | Safety Climate Assessment Tool" and a search bar. Below the header is a navigation menu with links: HOME, WHAT IS SAFETY CLIMATE, WHAT IS THE S-CAT, TAKE THE S-CAT, and IMPROVING JOBSITE SAFETY CLIMATE. The main content area features a background image of a construction worker's hands wearing gloves and holding a tool. Overlaid on this image is a quote: "We have used the S-CAT model for our construction insurance captive with great success." attributed to "Willis Insurance VP of Construction". Below the image, the title "Safety Climate Assessment Tool (S-CAT)" is followed by a paragraph describing the tool as a free resource for construction contractors and safety professionals to improve worker safety. It mentions that the tool provides tailored information based on employee safety perceptions and offers a snapshot of the company's jobsite safety climate. A final paragraph states that feedback is provided on 8 leading indicators of safety climate, which are predictive of employee injury rates, and that the tool allows for personalized feedback reports and benchmarking.

S - CAT | Safety Climate Assessment Tool

Search ...

HOME WHAT IS SAFETY CLIMATE WHAT IS THE S-CAT TAKE THE S-CAT IMPROVING JOBSITE SAFETY CLIMATE

"We have used the S-CAT model for our construction insurance captive with great success."

- Willis Insurance
VP of Construction

Safety Climate Assessment Tool (S-CAT)

The Safety Climate Assessment Tool (S-CAT) is a free tool available to any construction contractor or safety and health professional who wants tailored and actionable information to improve the safety of every worker at every job-site. The S-CAT allows a company to obtain information regarding employee **safety perceptions**. These safety perceptions provide a snapshot view of the company's **jobsite safety climate**. A strong jobsite safety climate has a positive impact on a company's **overall safety culture**, just as a strong safety culture positively affects jobsite safety climate.

Feedback is provided on 8 leading indicators of safety climate that have been shown to be predictive of employee injury rates. With just a few clicks, company employees or an individual can answer questions about each indicator and then receive a personalized feedback report with benchmarking and comparative information indicating their current areas of success and ideas for making improvements. Companies can have their employees take the S-CAT periodically to track their progress at improving their jobsite safety climate.



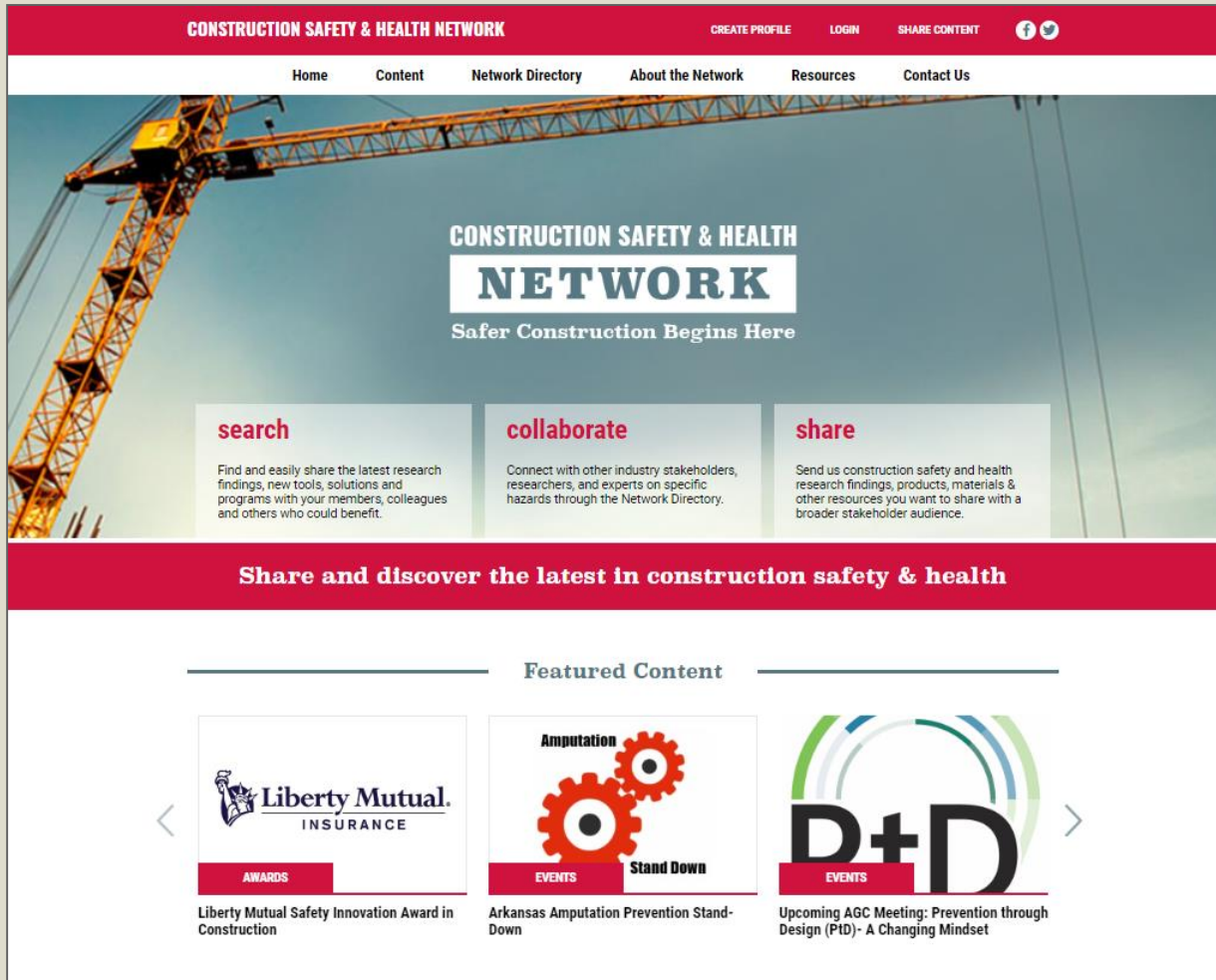
The graphic for the Safety Climate Assessment Tool (S-CAT) for Small Contractors features a red background with a network of interconnected nodes. The nodes are represented by circles in various colors (yellow, green, blue, orange) and are connected by thin black lines, forming a complex web. The title "Safety Climate Assessment Tool(S-CAT^{sc}) for Small Contractors" is written in red at the top. The CPWR logo and the year "2018" are located at the bottom right.

Safety Climate Assessment Tool(S-CAT^{sc}) for Small Contractors

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RESEARCH AND TRAINING



2018

Construction Safety & Health Network



The screenshot shows the homepage of the Construction Safety & Health Network. The header is red with white text for the site name and navigation links. The main banner features a large yellow crane against a blue sky, with the network's name and tagline centered. Below the banner are three white boxes with red headers: 'search', 'collaborate', and 'share', each with a brief description of its function. A red bar below these boxes contains the text 'Share and discover the latest in construction safety & health'. The 'Featured Content' section at the bottom has a white background with three featured items, each with a logo, a red 'EVENTS' button, and a title. The first item is the Liberty Mutual Safety Innovation Award, the second is the Arkansas Amputation Prevention Stand-Down, and the third is an upcoming AGC meeting on Prevention through Design (PtD).

CONSTRUCTION SAFETY & HEALTH NETWORK

CREATE PROFILE LOGIN SHARE CONTENT  

Home Content Network Directory About the Network Resources Contact Us

CONSTRUCTION SAFETY & HEALTH NETWORK

Safer Construction Begins Here

search

Find and easily share the latest research findings, new tools, solutions and programs with your members, colleagues and others who could benefit.

collaborate


Connect with other industry stakeholders, researchers, and experts on specific hazards through the Network Directory.

share

Send us construction safety and health research findings, products, materials & other resources you want to share with a broader stakeholder audience.

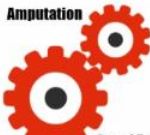
Share and discover the latest in construction safety & health

Featured Content

 **Liberty Mutual**
INSURANCE


AWARDS

Liberty Mutual Safety Innovation Award in Construction

 **Amputation**
Stand Down

EVENTS

Arkansas Amputation Prevention Stand-Down

 **D+D**

EVENTS

Upcoming AGC Meeting: Prevention through Design (PtD) - A Changing Mindset



Construction Safety & Health Network

CONSTRUCTION SAFETY & HEALTH NETWORKCREATE PROFILELOGINSHARE CONTENT

HomeContentNetwork DirectoryAbout the NetworkResourcesContact Us

Create Your Profile

Drop your image here

CHOOSE FILE

* REQUIRED FIELDS

Area of Expertise

☐ All Falls
☐ Aerial Lifts
☐ Ladders
☐ Scaffolds
☐ Slips & Trips
☐ All Inhalation/Respiratory Exposure
☐ Asbestos & Fibers
☐ Carbon Monoxide & Gases
☐ Hexavalent Chromium & Metals
☐ Lead

☐ Mold & Organisms
☐ Nanotechnology
☐ Silica / Construction Dust
☐ Solvents, Adhesives & Paint
☐ Welding Fumes & Gases
☐ All Skin/Dermal Exposures
☐ Beryllium
☐ Carbon Monoxide & Gases
☐ Cement
☐ Epoxy
☐ Hexavalent Chromium & Metals

☐ Nanotechnology
☐ Solvents, Adhesives & Paint
☐ Radiation
☐ Drugs, Alcohol / Tobacco
☐ Crushed/Struck by
☐ Electricity
☐ Fire and Explosions
☐ Ergonomics (MSDs)
☐ Evaluation
☐ Green Construction/LEED

☐ Prevention
☐ Noise/Vibration
☐ Small Business
☐ Safety Culture
☐ Research to Practice
☐ Confined Spaces
☐ Trenches & Excavations
☐ Vulnerable Workers
☐ Work Zones / Motor Vehicles
☐ Weather

Associated Links:

ADD ADDITIONAL LINKS

SEARCH RESULTS

Jessica Bunting

Researcher
CPWR - The Center for Construction Research & Training



website:
www.cpwr.com

area of expertise:

Falls
Scaffolds
Ladders
Aerial Lifts
Slips & Trips
Research to Practice (r2p)
Evaluation

email

jbunting@cpwr.com

phone:

(301) 495-8515

Construction Solutions



Construction hazards with suggested options for making work safer

X

Search

Find Solutions by Work:

[Click Here](#)

-OR-

List Solutions By Topic:

[Click Here](#)



Garage Spring Winding Wrench

A garage spring winding wrench is an engineering control that reduce injuries from residential or commercial garage door torsion spring wi...

[View Solution](#)



Lead Encapsulating Compounds

Lead encapsulating compounds can help prevent lead exposure by sealing the surface of lead-based paint and other coatings.

[View Solution](#)




Fume Extraction MIG Welding Gun

Fume extraction MIG welding guns remove welding fumes at the point of generation.

[View Solution](#)

ROI Calculator




ROI CALCULATOR







You have entered as a guest

[Register](#) | [Forgot Password?](#)

Email Password [Login](#)

Enter information below or [Load an example](#) [Help Getting Started](#)

Project Description 
(e.g. number of units installed, times equipment is used, or tasks performed, and time period if it impacts cost)

	Column 1	Column 2
Name of equipment, material, or work practice 	<input type="text"/>	<input type="text"/>
Cost to purchase or lease & maintain 	\$ <input type="text" value="0.00"/> Edit	\$ <input type="text" value="0.00"/> Edit
Cost to train & deploy 	\$ <input type="text" value="0.00"/> Edit	\$ <input type="text" value="0.00"/> Edit
Worker productivity 	\$ <input type="text" value="0.00"/> Edit	\$ <input type="text" value="0.00"/> Edit
Injury costs 	\$ <input type="text" value="0.00"/> Edit	\$ <input type="text" value="0.00"/> Edit
Total cost: 	\$ 0.00	\$ 0.00

Notes:

Email Print Log in to Save and Load Files Start Over

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Electronic Library of Construction Occupational Safety & Health (eLCOSH)



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RECENT CONTENT

Noise and Hearing Loss: An Interdisciplinary Annotated Bibliography

This document is part of a series of annotated, interdisciplinary bibliographies of academic research on major topics in construction occupational saf...

Welding Fumes: An Interdisciplinary Annotated Bibliography

This document is part of a series of annotated, interdisciplinary bibliographies of academic research on major topics in construction occupational saf...

Younger Workers: An Interdisciplinary Annotated Bibliography

This document is part of a series of annotated, interdisciplinary bibliographies of academic research on major topics in construction occupational saf...


MEDIA





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[Images](#)
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DOCUMENTS


[Toolbox Talks](#)
[Training Materials](#)
[Handouts](#)
[Research Reports](#)
[All](#)

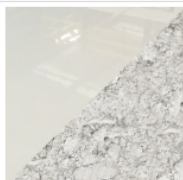
eLCOSH Nano



 Product Categories
  News/Info
  About
  elcosh Home


Construction is seeing the introduction of remarkable new nano-enabled products that are lighter, stronger, more wear-resistant and better insulators. But some nanoparticles added to these products may cause health problems and very little worker exposure measurements have been collected, particularly in construction. That is why CPWR created this inventory. We believe, at a minimum, construction workers and contractors have a right to understand which products may contain nanoparticles so they can better consider the benefits and risks.





Line of Metallic Pigments (e.g., Pearl Pigment)
Category: Flooring
Nanomaterials:
 mica nanoparticles
Company: Colored Epoxies

View Product




X-Coat™ Nano 22
Category: Flooring
Nanomaterials:
 nano-zinc
Company: Essential Industries, Inc.

View Product


Product Categories

- Additives for asphalt (4)
- Additives for coatings (26)
- Additives for concrete/cement (20)
- Adhesives (12)
- Boiler additives (1)
- Caulking (2)


NEWS AND RELATED INFORMATION



Make like a leaf: researchers developing method to convert CO₂
 Researchers develop process for carbon dioxide conversion yielding hydrocarbon, a compound that can be used for constru...



Highlights of Recent Research on the Environmental, Health, and Safety Implications of Engineered Nanomaterials
 "Nanotechnology involves harnessing the unique properties of materials at the nanoscale to enable innovation. Nanotechn...



Beetle scales hold secret to creating sustainable paint from recycled plastic, research shows
 "Cyphochilus beetle scales are one of the brightest whites in nature and their ultra-white appearance is created by the..."

Other Resources

Jobsite Resources

- **Toolbox Talks** - www.cpwr.com/publications/toolbox-talks
- **Hazard Alert Cards** - www.cpwr.com/publications/hazard-alert-cards
- **Infographics** - www.cpwr.com/research/infographics



Night Shift: Road Work

• Make sure there is enough lighting so you can see any equipment or traffic in your work area.

• Get someone's attention at night before you start work.

• When high-visibility safety apparel is required, wear it.



HAZARD ALERT
CPWR
RESEARCH AND TRAINING

WELDING FUMES AND GASES

I in danger?
Doing "hot work" on metal surfaces...
• cutting
• burning
...can create welding fumes and gases. If you aren't using ventilation or an appropriate respirator, you're in danger. The answer is **YES**.

Before you start ...

- 1 Remove all clothing**
Some paints, lacquers and other coatings generate toxic fumes and gases. Make sure all dangerous materials are removed before you start work.
- 2 Use ventilation**
Effective ventilation captures fumes and gases before they reach you. There is no such thing as a safe level of exposure. But if wind shielding can be set up, it can help. **Don't assume outdoor air is safe.** Overexposures have occurred.
- 3 Beware of confined spaces**
Before you weld or cut, your employer must provide a ventilation system that tests the air quality so you know if there are fumes or vapors. Caution: shield in a confined space, you must follow OSHA requirements - and so do you.

DANGER
CONFINED SPACE
HAZARDOUS ATMOSPHERE
NEED FOR RESPIRATOR AND COMMUNICATION

you should know about welding fumes and gases.*

you are ...	your work creates:	... and your health problem could be:
Welding with carbon dioxide (CO ₂) shielding gas	Carbon monoxide (CO)	Deadly: CO gas reaches poisonous concentrations
Welding with argon, helium, or other inert gases	Ozone and nitrogen oxides	Irritating: eyes, nose, throat and lungs suffer
Welding with shield metal or shield with flux	Phosphorus	Deadly: flux can fill lungs hours after exposure
Welding with shield metal or shield with flux	Manganese	Serious: long-term nerve damage like Parkinson's
Welding with shield metal or shield with flux	"Metal fume fever"	Not fatal: flu-like symptoms that pass
Welding with shield metal or shield with flux	Nickel and chromium	Serious: asthma and sometimes lung cancer
Cutting or welding metal with paint or coatings	Lead, cadmium, and other metals	Serious: nerve damage, reproductive damage, etc.
Welding using shielding gases like argon	Hazards in confined space	Deadly: to asphyxiation, reduced oxygen, over heating

* These are more hazards. This list shows the most common ones. ** The amount of exposure determines whether your health will be affected and how severely. Go to www.osha-slc.org for more info.



Protect Yourself from the Cold

You are at risk if you work outside or in cold conditions

Dress Appropriately
Wear clothes meant for cold, wet, and windy conditions such as:
• Loose-fitting layers
• Hats, socks, shoes, and gloves
• Outerwear that will keep you dry
Extreme exposure to the cold can eventually lead to hypothermia.

Drink Warm Beverages & Take Breaks
Take frequent breaks in heated areas, if possible.
Drink plenty of warm, sweet beverages (sugar water, sports drinks).
AVOID caffeine (in coffee, tea, sodas, or hot chocolate) and alcohol.

Know the Warning Signs

Health Problems:
Frostbite, Hypothermia, Uncontrollable Shivering, Slurred Speech, Clumsiness, Fatigue, Confusion.

Hypothermia is a medical emergency
Call 911
Getting help can be the difference between life and death.
You are at a higher risk if you take certain medications, are in poor physical condition, or suffer from illnesses such as diabetes, hypertension, or cardiovascular disease.

Work in pairs so that you and a co-worker can spot danger signs in each other. Follow these tips and stay safe in the cold.

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Resources by Topic

A-Z Index: T

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) **T** [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

[Technology Transfer](#)

- [An Intellectual Property Patent & Licensing Guide for Construction Safety & Health Researchers & Inventors](#)

[Toolbox Talks](#)

Toolkits

- [Construction Research to Practice \(r2p\) Partnership Toolkit](#)
- [Construction Safety & Health Social Marketing Toolkit](#)

Traffic Safety

- Toolbox Talk: [Traffic Safety](#) and [Seguridad Vial](#)

Training Programs

- [Noise & Hearing Loss Prevention](#)
- [RF Radiation Awareness](#)
- [Best Built Plans](#)
- [Webinars](#)
- [Hazard Communication](#)
- [Smart Mark](#)
- [Hazardous Waste Training](#)
- [DOE Safety Culture](#)
- [Disaster Response](#)
- [Confined Space](#)
- [Train the Trainer](#)
- [OSHA Education Center](#)
- [Environmental Career Worker](#)
- [Infection Control Risk Assessment \(ICRA\)](#)
- [SAVE Training Program](#)

Training Research

- Research Project: [Safety Voice for Ergonomics \(SAVE\)](#)
- Research Project: [OSH Education in Post-secondary Career Technical Education Construction Programs](#)
- [Key Findings from Research](#)
- [CPWR Reports](#)
- [Peer-reviewed Journal Articles](#)
- [Webinars](#)

[Trenching/Trench Safety](#)

- Hazard Alert Card: [Trenches and Zanjas](#)
- Toolbox Talk: [Trench Safety](#) and [Seguridad en Zanjas](#)

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A-Z INDEX

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Trench Safety

Resources to Promote Safe Work in Trenches

Injuries and fatalities associated with trenching and excavation work are preventable. The following are resources to help raise awareness of the risks and promote safe work practices.

Mark Your Calendar! 2019 Trench Safety Stand Down June 17-21, 2019 ([Click here to learn more](#))

CPWR:

- [Trenches Hazard Alert](#) (also available in [Spanish](#))
- [Trench Safety Toolbox Talk](#) (also available in [Spanish](#))
- [No New Year -- Trench Collapse Video](#) (also available in [Spanish](#))
- [Practice Trench Safety. It Saves Lives Infographic](#) (also available in [Spanish](#))
- [Strategies to Prevent Trenching-Related Injuries and Deaths Report](#)

NIOSH:

- -NIOSH Science Blog - [Preventing Trenching Fatalities](#) (planning needs and solutions)
- [Trenching and Excavation](#) topic page
 - [Preventing Worker Deaths from Trench Cave-ins](#)
 - [Preventing Deaths and Injuries From Excavation Cave-Ins: NIOSH Alert](#)
 - [Trench Safety Awareness Web-based training](#)
 - [Development of Draft Construction Safety Standards for Excavations](#)
- [Trench safety-using a qualitative approach to understand barriers and develop strategies to improve trenching practices](#)

OSHA:

- [5 Things You Should Know to Stay Safe in a Trench](#) (45-second video from Secretary Acosta)
- [Trenching and Excavation](#) topic page
 - [Trenching and Excavation Public Service Announcement](#) (also available in [Spanish](#))

Opioids Resources

- Opioids killed more than 42,000 people in 2016 and 40% of those deaths involve a prescription opioid.
- The construction industry has one of the highest injury rates when compared to other industries and opioids have commonly been prescribed to construction workers to treat the pain
- Important for workers to understand the risks and alternatives.

Physicians'/Providers' Alert:

Pain Management for Construction Workers

This Alert was developed to help ensure that all construction workers with because of pain from an injury are aware of treatment options and understand with using prescription opioids. Please:

- (1) read and print this Alert;
- (2) keep the "Tips for Talking with Your Doctor"; and
- (3) fill in the "To My Doctor" form and give it to your doctor to include

Tips for Talking with Your Doctor: What You Need to Know

Opioids, such as fentanyl (Duragesic®), hydrocodone (Vicodin®), oxycodone (Lamictal®), hydromorphone (Dilaudid®), meperidine (Demerol®), diphenoxylate (Lomotil®), morphine, and codeine are often prescribed to help manage pain. In addition, such as Duvia®, which are considered even more addictive. Since these are used if other treatment options are not effective. When prescribed, they are closely monitored, and include counseling.

Talk to your doctor about treatment options and how the medication may

- ✓ If you have been or are being treated for another health issue or have a doctor.
- ✓ If you have a history of addiction to tobacco, alcohol or drugs, or if there is a family history of addiction.
- ✓ About your work environment. Let your doctor know that 1) taking opioids can make you drowsy, and 2) testing positive for some drugs, even if they are not yours, can impact employment opportunities. Some employers have expanded panels of drugs they test employees for, including, for example, fentanyl, hydrocodone, oxycodone, and morphine.

HAZARD ALERT OPIOID DEATHS IN CONSTRUCTION

Don't be a statistic. Protect yourself from an opioid overdose.



Construction work can result in painful injuries that are often treated with prescription opioids. Opioids are addictive and should be the last option to treat your pain. Talk to your doctor about non-addictive medications.



REMEMBER: Addiction is an illness that can be treated.

Call this confidential national hotline:

1-800-662-HELP (4357)

Visit: Facing Addiction — <https://resources.facingaddiction.org/>

1 out of 4 people prescribed opioids for long-term pain become addicted.

In 2017 alone, more than 72,000 people died in the U.S. from an overdose — over 49,000 of which involved an opioid.

Overdose deaths that occur on the job are on the rise.

Opioid Deaths in Construction



- ✦ Report hazards to your supervisor or foreman to prevent injuries.
- ✦ If you're injured, opioids are the last option. Talk to your doctor about non-addictive medications or other options to treat the pain.
- ✦ Need help with addiction?

Call this confidential hotline for help: 1-800-662-4357



Physician's Alerts

- Developed to help ensure that all construction workers at risk of developing work-related medical conditions are properly diagnosed and treated.
- Contain valuable information for the worker and their physician related to:
 - Common exposures and tasks in construction
 - Best practices to prevent and mitigate exposure-related conditions.
- **Current Topics:**
 - Occupational Silicosis
 - Work-related Asthma
 - Contact Dermatitis
 - Pain Management

Physicians' Alert: Work-Related Asthma (WRA) among Construction Workers

This Alert was developed to help ensure that all construction workers at risk of developing asthma or worsening their pre-existing asthma from work exposures are properly diagnosed and treated. *Please:*

- (1) read and print this Alert;
- (2) keep the Best Practice tips to help you work safely; and
- (3) fill in the "To My Doctor" form and give it to your doctor to include in your medical records.

Best Practices for You

The following are selected best practices for preventing work-related asthma:

Physicians' Alert: Work-Related Asthma (WRA) among Construction Workers

To My Doctor: I am a construction worker who has frequent occupational exposure to chemicals, dusts and harsh weather conditions. Please keep this information for reference and to aid in evaluation of possible lung conditions

This document should be filed in the medical records of (patient's full name): _____

Date of Birth: ____ / ____ / ____
Month Day Year

Your patient is a construction worker with exposures to construction dust and chemicals.

Construction workers are exposed to a large number of substances (chemicals, fumes, dusts) and conditions (e.g. extremes of temperature, humidity) that can cause work-related asthma (WRA), either new onset asthma (occupational asthma) or exacerbation of prior asthma (work-exacerbated asthma). Both allergens and irritants can cause WRA.

Construction workers can develop WRA from exposures to: isocyanates in polyurethane coatings, glues, and foam insulation; epoxies in glues; disinfectants (e.g. bleach or ammonium chloride in cleaning compounds used to kill mold); chromium in welding fumes or cement dust; wood dusts; diesel exhaust; welding fumes; formaldehyde in wood board and paints; and methyl methacrylate in reinforced concrete layers. WRA in construction workers may also occur from spilled or leaked acids such as muriatic acids used for cleaning or from other caustic materials.

Many products and processes used in construction can trigger asthmatic symptoms in persons with prior asthma, including childhood asthma. Dusts and fumes generated by working with wood, brick or cement, using spray products, welding or hot work, and renovation and demolition work, as well as work in extreme weather conditions (hot, cold, high-low humidity) can trigger asthma symptoms. Table 1 contains a list of substances and tasks that can cause WRA.

Chronic exposure to the many exposures in construction work over many years can also lead to the development of chronic obstructive pulmonary disease (COPD) in smokers and non-smokers. The combination of work exposures with cigarette smoking increases the risk from either one alone.

- 3) Do asthma symptoms differ during times away from work such as weekends or holidays or other extended times away from work?
- 4) Are there symptoms of allergic rhinitis and/or conjunctivitis symptoms that are worse with work?

If the patient has positive responses to the above questions, particularly questions two or three, confirm the diagnosis of asthma, including history of childhood asthma, age of onset, treatment and effectiveness of inhalers. Evaluate the patient for reversible airflow obstruction by performing spirometry with pre/post bronchodilator testing or methacholine challenge testing if normal on baseline spirometry. Review the possible exposures and/or work conditions that trigger the patient's asthma symptoms. Assessing whether the patient's asthma is associated with work is most commonly done by a careful occupational history documenting the temporal relationship between onset of asthma and changes in asthmatic symptoms and work. Additional testing, such as the patient keeping a diary of peak flow tests performed two weeks at and two weeks or more away from work, or immunologic tests for certain sensitizers, when positive add greater diagnostic certainty. Whenever possible, perform these tests prior to advising the patient regarding employment. Consider referring the patient to a pulmonologist or occupational medicine physician familiar with work-related diseases for assistance with diagnosis and management, and to protect the patient's legal rights in the workers' compensation system.

For more information about occupational health, see the Association of Occupational and Environmental Clinics (AOEC) at www.AOEC.org.

References:

- 1) The Association of Occupational and Environmental Clinics (AOEC) lists causes of work-related asthma <http://www.aocdata.org/ExpCodeLookup.aspx>. This listing includes other known occupational and environmental exposures. To look at just asthmagens (substances known to cause asthma) click on "Display All".

Diagnosing WRA

tasks, such
by out of the
Visit
urse at work
posure to
need for

Safety & Health Videos

What's New ▶ PLAY ALL



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No New Year -- Trench
Collapse



Sin Un Año Nuevo

CPWR – The Center for Constr...



Look Up and Live -- Overhead
Power Line Electrocution



Mira hacia arriba y vive

CPWR – The Center for Constr...



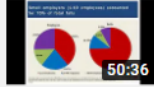

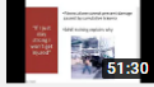

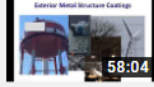



A Simple Task -- Fatal Ladder
Fall

Informational Webinars

- 50+ Webinars to date
- 1 x Month
- Register in Advance
- Watch on Demand



-  **12:40**
Una mirada a los materiales y recursos en español de CPWR
CPWR – The Center for Construction Research and Training
-  **28:17**
CPWR Spanish Resources Webinar 8 21 19
CPWR – The Center for Construction Research and Training
-  **50:36**
Trends of Fall Injuries and Prevention in the Construction Industry
CPWR – The Center for Construction Research and Training
-  **1:09:51**
What Happens After a Fall is Arrested? Suspension Trauma and the Importance of Having a Rescue Plan
CPWR – The Center for Construction Research and Training
-  **51:30**
Safety Voice For Ergonomics A Research to Practice Example in the Masonry Trade
CPWR – The Center for Construction Research and Training
-  **31:13**
Nonstandard Work Arrangements in the U S Construction Industry 20190424 1759 2
CPWR – The Center for Construction Research and Training
-  **58:04**
Assessment and control of exposures to ISOCYANATES in industrial coating applications 20190321 1800
CPWR – The Center for Construction Research and Training
-  **51:23**
The National Campaign to Prevent Falls in Construction Getting Ready for the 2019 Stand Down
CPWR – The Center for Construction Research and Training

In Conclusion...

Everything is Free!

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